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Docket No. 9539-000055

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Michalek et al :  
Serial No. 10/085,743 :  
Filed: February 26, 2002 :  
For: **Press-In Exciter Ring Assembly** :

Group: 2862

Examiner: Reena Aurora

**RECEIVED**  
MAR 09 2004

Director of the U.S. Patent and Trademark Office  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**AFFIDAVIT OF JOHN STANLEY MICHALEK  
AND MATTHEW PERRY BROWN**

Sir:

Being duly sworn, the undersigned hereby states, that to the best of our knowledge and belief:

1. We are the joint inventors named in the above-identified patent application and are employees of American Axle & Manufacturing (hereinafter AAM) the assignee of this invention.

2. It is our understanding that the subject matter currently being claimed in this application relates to an exciter ring assembly; an axle assembly with an exciter ring; and a vehicle with an exciter ring.

3. It is our further understanding that the claims in this application stand rejected by the Examiner under 35 USC 102(e) as being allegedly anticipated by U.S. Patent No 6,549,001 to Dobbs et al which matured from an application first filed on November 2, 2001.

4. We conceived the invention claimed in our application before November 2, 2001, and were diligent in working with our attorneys to constructively reduce our invention to practice by way of filing a patent application disclosing our invention on February 26, 2002, application No. 10/085,743.

5. Exhibit A is a copy of an Invention Disclosure that we submitted to the AAM patent department. The dates and some other information not relating to the conception of the claimed subject matter have been blocked out. However, the dates in the "Conception of Invention" section is before November 2, 2001, as are the dates adjacent to the signatures.

6. Exhibit B is a copy of a letter dated January 29, 2001 from AAM's in-house patent counsel to W. R. Duke Taylor, Esq., outside patent counsel whose firm prepared our patent application.

7. It was our understanding that AAM's in-house counsel had a search conducted and this was reported in the letter of Exhibit C dated February 19, 2001.

8. A draft of the application was prepared by outside counsel and sent to us for our review on August 17, 2001 as evidenced by Exhibit D.

9. We reviewed the application and provided our comments to outside counsel who finalized the application and returned it to AAM's in-house counsel on January 21, 2002, as evidenced by Exhibit E.

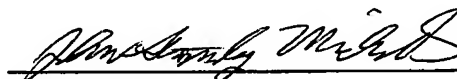


RECEIVED  
MAR 09 2004

10. The subject patent application was filed on February 26, 2002.


11. Thus, the foregoing evidence proves conception and diligence towards constructive reduction to practice. This evidence should not be construed as an admission, however, that there was no actual reduction to practice in this invention.

12. Therefore, the foregoing evidence indicates that Applicants' invention was prior to the effective filing date of U.S. Patent No. 6,549,001.

  
John Stanley Michalek

State of Michigan )  
County of Wayne ) ss.

On this 27<sup>th</sup> day of February, 2004, before me personally appeared the foregoing individual, who executed the foregoing instrument and who acknowledged to me that he/she executed the same of his/her own free will for the purposes therein set forth.

  
Notary Public,  
Macomb Acting in Wayne County, Mi  
County, State of Michigan  
My Commission Expires: 08/25/05

(seal)



Matthew Perry Brown

Matthew Perry Brown

State of Michigan )  
County of Wayne ) ss.  
 )

On this 27<sup>th</sup> day of FEBRUARY, 2004, before me personally appeared the foregoing individual, who executed the foregoing instrument and who acknowledged to me that he/she executed the same of his/her own free will for the purposes therein set forth.

K. Sue Kamil

Notary Public

Hacoma County, State of Michigan

My Commission Expires: 08/25/05

(seal)



**AMERICAN  
AXLE &  
MANUFACTURING**

## RECORD OF INVENTION

AAM DEPARTMENT/LOCATION PRODUCTION ENGINEERING / TECHNICAL CENTER

FILE NO. \_\_\_\_\_

SUBJECT PRESS-IN EXHAUST RAIL ASSEMBLY - ADDITIONAL  
PLEASE PRINT OR TYPE FEATURES

Inventor JOHN STANLEY MICHAEL Citizen of USA  
FIRST NAME FULL MIDDLE NAME LAST NAME

Social Security No. \_\_\_\_\_

Home Address \_\_\_\_\_  
STREET CITY AND STATE ZIP CODE

AAM Address 2965 TECHNOLOGY DRIVE AAM Telephone 248-299-6514  
ROCHESTER HILLS, MI. 48309-3589

Employed by (if not AAM employee) \_\_\_\_\_

Inventor \_\_\_\_\_ Citizen of \_\_\_\_\_  
FIRST NAME FULL MIDDLE NAME LAST NAME

Social Security No. \_\_\_\_\_

Home Address \_\_\_\_\_  
STREET CITY AND STATE ZIP CODE

AAM Address \_\_\_\_\_ AAM Telephone \_\_\_\_\_

Employed by (if not AAM employee) \_\_\_\_\_

Inventor \_\_\_\_\_ Citizen of \_\_\_\_\_  
FIRST NAME FULL MIDDLE NAME LAST NAME

Social Security No. \_\_\_\_\_

Home Address \_\_\_\_\_  
STREET CITY AND STATE ZIP CODE

AAM Address \_\_\_\_\_ AAM Telephone \_\_\_\_\_

Employed by (if not AAM employee) \_\_\_\_\_

(over)

# RECORD OF INVENTION

1. This invention is disclosed in the following sketches, drawings, written description, and/or technical reports (attach copies).

THESE DOCUMENTS SHOULD PROVIDE A FULL DISCLOSURE OF YOUR INVENTION AND SHOULD BE SIGNED AND DATED BY EACH INVENTOR AND BY TWO WITNESSES WHO UNDERSTAND THE INVENTION.

2. This invention was first thought of \_\_\_\_\_ on \_\_\_\_\_
3. First sketch or drawing (attach copy) was made by JOHN MICHAEL on \_\_\_\_\_
4. First written description (attach copy) was made by JOHN MICHAEL on \_\_\_\_\_
5. This invention was first disclosed to DAVID DELOS - CL (SEA) on \_\_\_\_\_
6. First tests (attach copy of results) were made by \_\_\_\_\_ on \_\_\_\_\_, 19\_\_\_\_.
7. This invention was or is expected to be published or disclosed outside AAM to:  
THIS FEATURE IS NOT EXPECTED TO BE EXPLICITLY on \_\_\_\_\_, 19\_\_\_\_.  
DISCLOSED OUTSIDE OF AAM / CL (SEA) on \_\_\_\_\_, 19\_\_\_\_.
8. This invention was or is expected to be used in production starting \_\_\_\_\_ on \_\_\_\_\_, 19\_\_\_\_.
9. In addition to those identified above, the following people can also testify to facts relating to the making of this invention:  
PETER MURPHY
10. The nearest thing or things to this invention that I know of are:

I HEREBY ASSIGN THIS INVENTION TO AMERICAN AXLE & MANUFACTURING, INC. AND AUTHORIZE AMERICAN AXLE & MANUFACTURING, INC. TO FILE AN APPLICATION FOR PATENT ON MY BEHALF.

This invention was reviewed and understood by me

Peter J. Murphy  
WITNESS

Elizabeth S. McGowan  
WITNESS

INVENTOR SIGNATURE

INVENTOR

DATE

INVENTOR

DATE

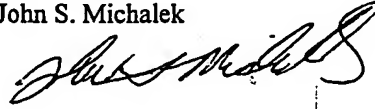
INVENTOR

DATE

Press-In Exciter Ring Assembly – Additional Feature: Retaining ring cutouts and/or recesses

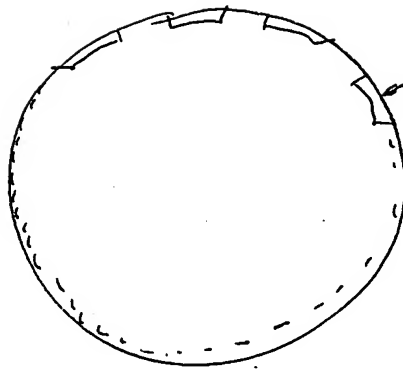
The retaining ring on the Press-In Exciter Ring Assembly when designed with cutouts and/or recesses on the outside diameter will provide an additional path for oil to flow around the Press-In Exciter Ring Assembly and thereby increase oil flow to the bearing.

John S. Michalek

A handwritten signature in black ink, appearing to read "John S. Michalek", written in a cursive style.

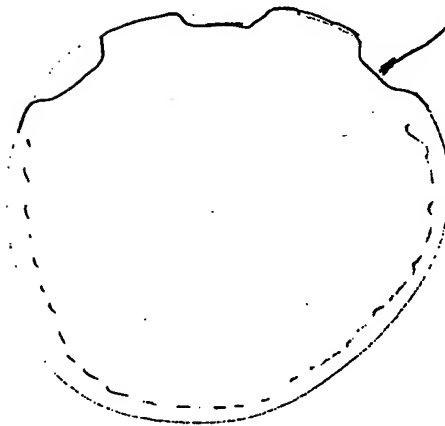


(A)



COTOUTS

(B)



RECESS

# RECORD OF INVENTION

1. This invention is disclosed in the following sketches, drawings, written description, and/or technical reports (attach copies).

THESE DOCUMENTS SHOULD PROVIDE A FULL DISCLOSURE OF YOUR INVENTION AND SHOULD BE SIGNED AND DATED BY EACH INVENTOR AND BY TWO WITNESSES WHO UNDERSTAND THE INVENTION.

2. This invention was first thought of \_\_\_\_\_ on \_\_\_\_\_
3. First sketch or drawing (attach copy) was made by JOHN S. MICHALEK on \_\_\_\_\_
4. First written description (attach copy) was made by JOHN S. MICHALEK on \_\_\_\_\_
5. This invention was first disclosed to MARK SPREITZER - CHICAGO RAILROAD on \_\_\_\_\_
6. First tests (attach copy of results) were made by \_\_\_\_\_ on \_\_\_\_\_
7. This invention was or is expected to be published or disclosed outside AAM to:  
MARK SPREITZER - CHICAGO RAILROAD on \_\_\_\_\_
8. This invention was or is expected to be used in production starting \_\_\_\_\_ on \_\_\_\_\_
9. In addition to those identified above, the following people can also testify to facts relating to the making of this invention:

10. The nearest thing or things to this invention that I know of are:

ENTER RING PROSSON GEARITY ON SHAFT PRIOR TO ASSEMBLY.

I HEREBY ASSIGN THIS INVENTION TO AMERICAN AXLE & MANUFACTURING, INC. AND AUTHORIZE AMERICAN AXLE & MANUFACTURING, INC. TO FILE AN APPLICATION FOR PATENT ON MY BEHALF.

This invention was reviewed and understood by me

Matthew A. Brown  
WITNESS

Michael A. A  
WITNESS

John S. Michalek  
INVENTOR SIGNATURE

Matthew P. Brown  
INVENTOR

DATE

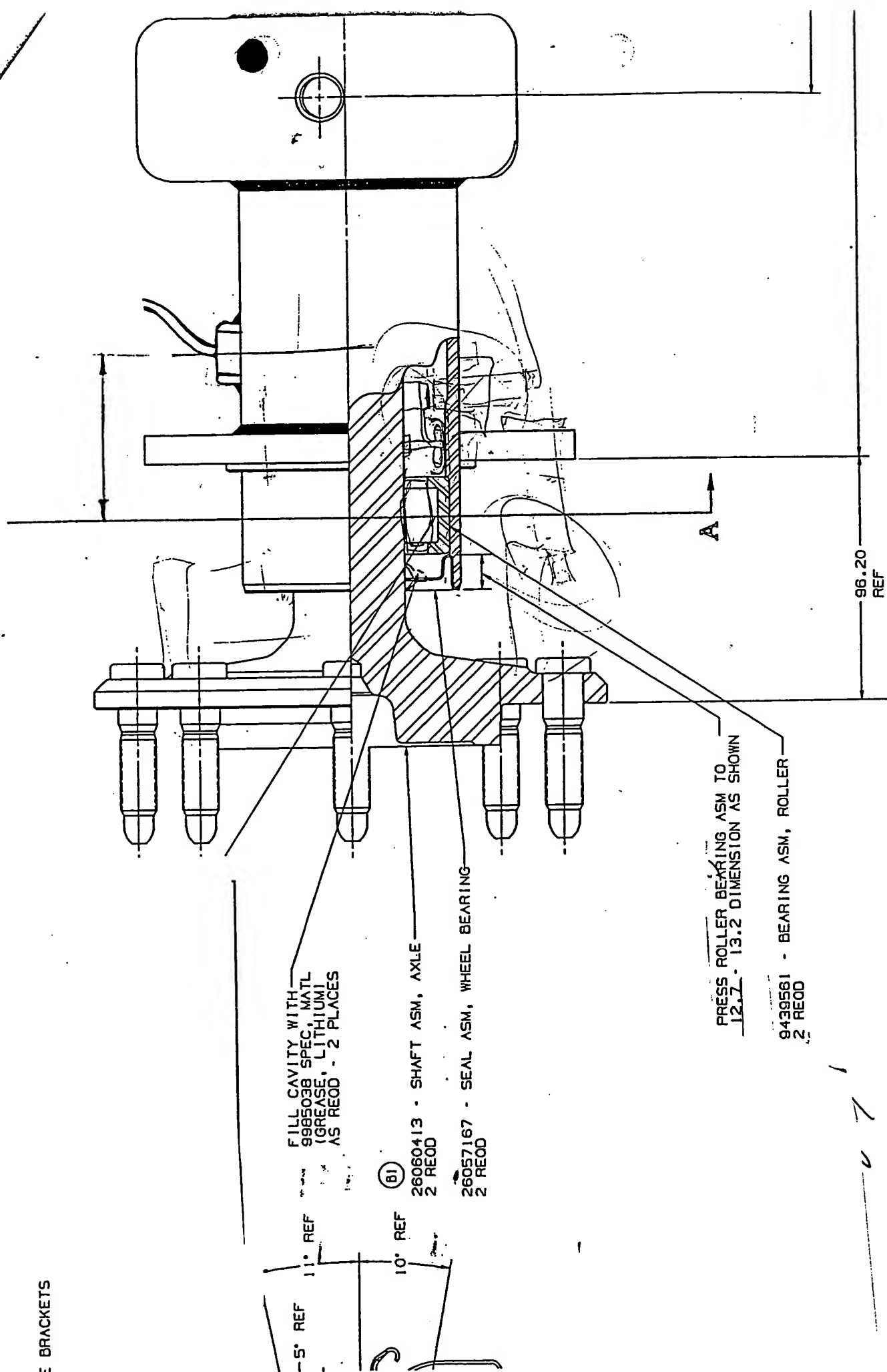
INVENTOR

DATE

INVENTOR

DATE

# E BRACKETS



11-200 10 M.S. 11-21-50

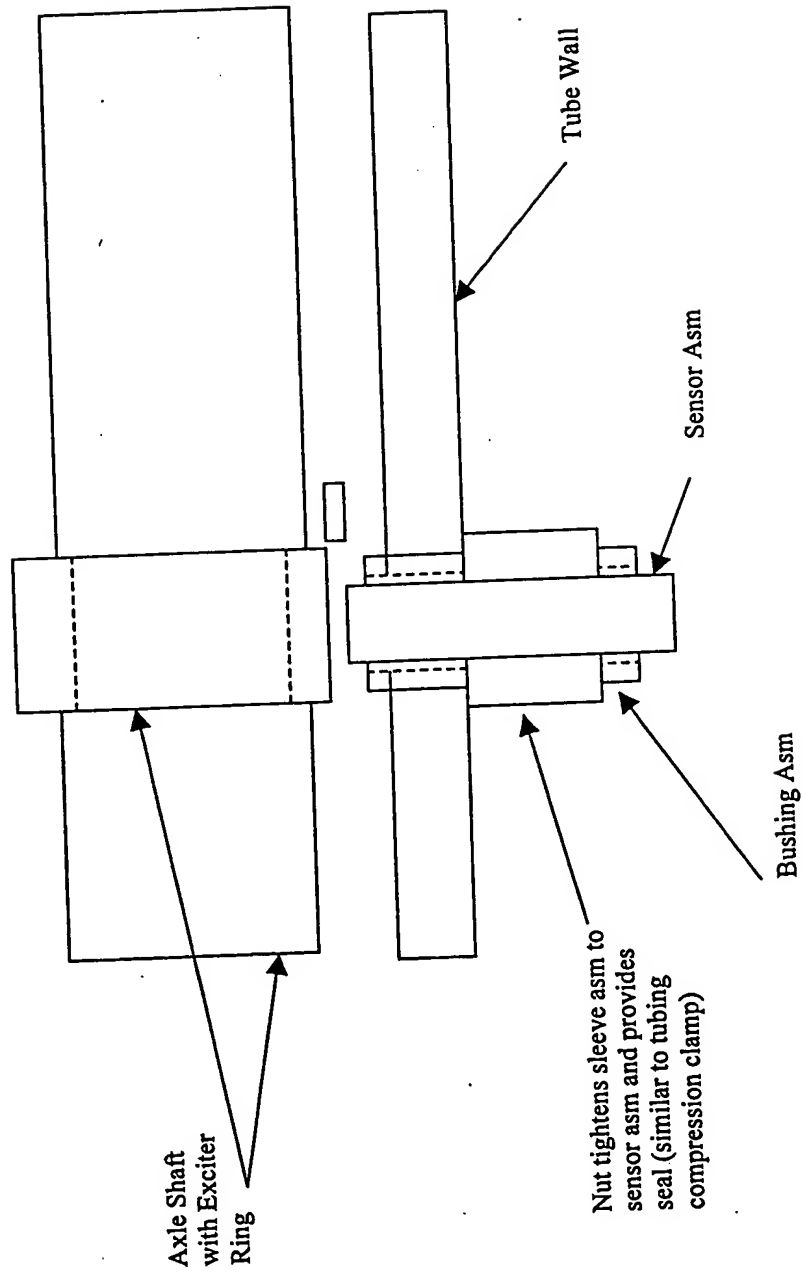
## Press-In Exciter Ring Assembly

The Press-In Exciter Ring Assembly is comprised of an exciter ring (or exciter ring assembly) for shaft motion sensing which is loosely assembled to, and retained by an outer member. This outer member allows retention of the exciter ring into a single assembly called the Press-In Exciter Ring Assembly. This Press-In Exciter Ring Assembly can then be installed into a hollow member (such as an axle tube) inboard of the other components allowing the total assembly to have a larger exciter ring for speed sensing than would be possible under conventional methods.

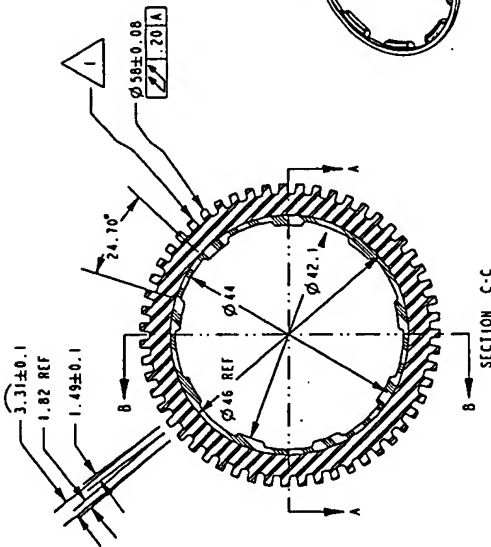
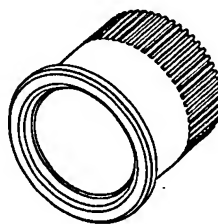
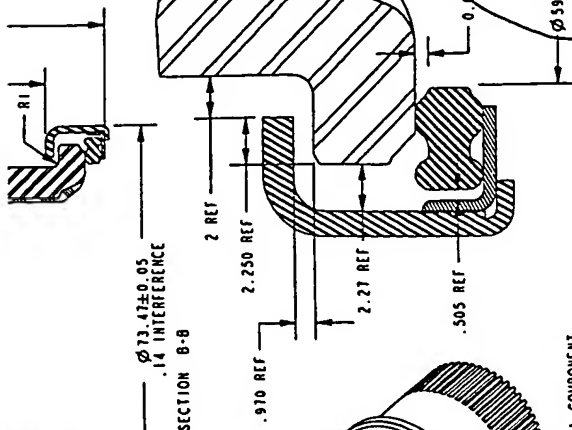
Shaft installation process: The shaft is installed through the seal and bearing, it will travel through and be retained by the exciter ring inside diameter. The axial movement of the exciter ring would be limited by the outer member, which effectively positions the exciter ring properly when the shaft reaches its final position

Additional performance of this method can be obtained through use of a variable position sensor retaining mechanism. This mechanism will allow continuously variable positioning of the sensor so as to permit minimum gap to the exciter ring.

# Proposed Wheel Speed Sensing Design



★	"CR" & "536846" & "USA" - & 9.5-- MOLDED (PRODUCTION ONLY)
△ 1	55 TEETH, EVENLY SPACED
△ 2	0.5 MAX SPRUE GATE EXTENSION (3) PLACES
△ 3	BONDED FLASH PERMITTED
△ 4	COATED WITH KRYTOX
△ 5	ALL DIMENSIONS ARE METRIC IN mm
△ 6	FINAL DIMENSIONS TO BE CONFIRMED UPON ESTABLISHMENT OF TOOLING

[illegible]

TOLERANCES UNLESS OTHERWISE SPECIFIED	
DIAMETERS	.X ± .1
	.XX ± .05
HEIGHTS	.X ± .1
	.XX ± .05
RADI	.X ± .1
	.XX ± .05
ANGULAR	± 30°

CUSTOMER	AMERICAN AXLE & MFG. INC
CUSTOMER PART NUMBER	1BD
APPLICATION	9.5" REAR SENSOR SYSTEM
SEAL TYPE	NA
SIRVENE	507

CR DRAWING NUMBER  
536846

**SHAFT DIA.**

SHAFT DIA. 42 5 8 41.85

CUSTOMER  
AMERICAN AXLE  
& MFG. INC.

**CUSTOMER PART NUMBER**

APPLICATION

9.5" REAR SENSOR SYSTEM  
CAR SEAL TYPE

**SIRVENE**

---

**NA**

507

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AMERICAN  
AXLE &  
MANUFACTURING

WORLD HEADQUARTERS

January 29, 2001

W.R. Duke Taylor  
Attorney at Law  
Harness, Dickey & Pierce, P.L.C.  
5445 Corporate Drive  
Troy, Michigan 48098

RE: "Press-In Exciter Ring Assembly"  
Record of Invention  
AAM Tracking No. 01000AAM  
Inventors: John S. Michalek; Matthew P. Brown

Dear Duke:

Enclosed you will find a record of invention and accompanying drawings and discussion concerning the above referenced invention. Please conduct a novelty search investigation to determine the patentability of this invention.

Should you need to discuss further with the inventors, please advise and I will schedule a meeting and/or conference call. Both inventors are located in Rochester Hills.

Kindly acknowledge receipt of the enclosed. Also, please call with any questions once you have had an opportunity to review the enclosed.

Sincerely,

Richard G. Raymond  
General Counsel

CHARLES H. BLAIR  
JOSEPH R. PAPP  
H. KEITH MILLER  
JAMES E. STEPHENSON  
BERNARD J. CANTOR  
CHRISTOPHER M. BROCK  
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MONTE L. FALCOFF  
THOMAS T. MOGA  
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<http://www.hdp.com>

## **HARNESSE, DICKEY & PIERCE, P.L.C.**

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LISA M. DUROSS  
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B. DELANO JORDAN  
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DONALD G. WALKER  
GREGORY A. WALTERS  
RICHARD W. WARNER  
MICHAEL D. WIGGINS  
MICHAEL D. ZALOBSKY

### **COUNSEL**

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J. KING HARNESSE  
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ARTHUR W. DICKEY  
1925-1964

HODGSON S. PIERCE  
1927-1947

February 19, 2001

Richard G. Raymond, Acting General Counsel  
American Axle & Manufacturing  
1840 Holbrook Avenue  
Detroit, Michigan 48212-3488

RE: Our Reference 9539-500072  
AAM Tracking No. 01000AAM  
Inventors: John S. Michalek and Matthew P. Brown  
**PRESS-IN EXCITER RING ASSEMBLY**

Dear Rick:

In accordance with your letter dated January 29, 2001, we have conducted a novelty search investigation in the search room at the United States Patent Office in Washington, D.C. for the above-referenced Record of Invention. The following is a complete report of our search parameters and findings.

### **SUBJECT MATTER OF SEARCH**

During our search, we focused on a wheel speed sensing assembly using an exciter ring, assembled into and retained by an outer member of an axle shaft. The assembly can be installed in a way as to provide a larger exciter ring for speed sensing than would be possible under conventional means.



08-17-01 16:54:00  
AUG.17.2001 4:04PM

FROM: AA&M ROCH HILLS, MI TO: BROWN  
HARNES, DICKEY & PIERCE TROY MI

MATT  
NO.145

PAGE 1  
P.1/21

## **HARNES, DICKEY & PIERCE, P.L.C.**

*MARKED BY HSE*

Attorneys and Counselors  
5445 Corporate Drive, Suite 400  
Troy, Michigan 48098-2683  
Phone: 248-641-1600  
Fax: 248-641-0270  
St. Louis, MO • Washington, D.C.

DATE: August 17, 2001

NO. OF PAGES (INCLUDING THIS PAGE): 21

FOR: Mr. Matthew P. Brown

ORIGINAL WILL FOLLOW BY:

COMPANY: American Axle & Manufacturing

☐ REGULAR MAIL

FAX NO.: 299-6637

PHONE: 299-6437

☐ OVERNIGHT MAIL

☐ COURIER

☒ WILL NOT FOLLOW

FROM: W. R. Duke Taylor

Please let us know by phone or fax if you do not receive any of these pages.

COMMENTS:

MATT:

TO FOLLOW IS A DRAFT OF THE PATENT APPLICATION FOR:  
PRESS-IN EXCITER RING ASSEMBLY.

PLEASE REVIEW WITH JOHN MICHALEK AND PROVIDE ME WITH YOUR COMMENTS AT YOUR EARLY  
CONVENIENCE.

THANK YOU FOR YOUR ASSISTANCE.

DUKE TAYLOR

\*\*\* NOTICE \*\*\*

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**HARNESSE, DICKEY & PIERCE, P.L.C.**

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www.hdp.com

ST. LOUIS, MO

WASHINGTON, D.C.

January 21, 2002

Richard G. Raymond, General Counsel  
American Axle & Manufacturing, Inc.  
1840 Holbrook Avenue  
Detroit, Michigan 48212-3488

RE: Our Reference 9539-000055  
AAM Tracking No. 01000AAM  
Inventors: John S. Michalek and Matthew P. Brown  
For: **PRESS-IN EXCITER RING ASSEMBLY**

Dear Rick:

Enclosed please find a patent application for the above-referenced matter. Also enclosed is a Declaration & Power of Attorney and an Assignment, which need to be signed and dated by the inventors at the spaces next to their typed names.

Please return the entire package to me (i.e., do not separate the Declaration from the rest of the application), preferably by expedited mail, for filing in the U.S. Patent and Trademark Office at your earliest convenience.

Thank you again for your prompt attention to this matter. As always, if you have any questions regarding any of the above, please do not hesitate to contact me.

Very truly yours,



W. R. Duke Taylor

WRDT/jp